

## IAC Mission Success Stories

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WSTIAC

Story 1

Story 2

### Improved Sensor System for Locating Unexploded Ordnance

Former DoD sites used as practice ranges or munition test ranges contain unexploded ordnance (UXO) that must be located and removed before these sites can be turned over for civilian use. Current cleanup methods are very labor intensive and there is a critical need for improved UXO detection equipment. WSTIAC is developing innovative new technologies to solve this problem.

[Continued on Story 1](#)

### WSTIAC Supports Defense Department Customers

Although WSTIAC is just ending its first year of operation, it is already having a significant impact on the DoD weapons systems technology community. It is providing technical and bibliographical inquiry support to a large number of users in government, industry and academia and has established Technical Area Tasks that extend weapon systems technologies and apply them to solve critical DoD problems.

[Continued on Story 2](#)

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**WSTIAC**  
Weapon System Technology Analysis Center

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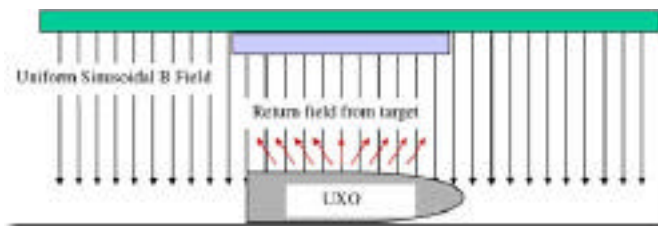
Story 1

Story 2

## Improved Sensor System for Locating Unexploded Ordnance (continued)

A new type of sensor system for UXO detection and discrimination was developed by IIT Research Institute (IITRI) personnel in support of the Engineering Research and Development Center at the U.S. Army Waterways Experiment Station in Vicksburg, Mississippi. The IITRI system utilizes off-the-shelf technology to produce an inexpensive and robust device that can reliably find UXO.

The device is based on multi-frequency electromagnetic induction technology, using the principle that different materials have different responses to low frequency electromagnetic energy. It works by probing below ground, with electromagnetic radiation in the 20 Hz to 20 kHz range, looking for a unique signature returned from a UXO item. A prototype system has been tested successfully in the laboratory and is under review with the expectation of continued development for field testing. Future plans include integrating the device with a newly-developed IITRI Differential Global Positioning System (GPS) data acquisition system so UXO can be reliably detected and its position recorded for follow-up. The figure illustrates how the multi-frequency electromagnetic induction sensor system is used to detect UXO.



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**WSTIAC**

Weapon System Technology Analysis Center

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## Story 1

### Story 3

By the end of FY 2000 WSTIAC had established eleven Technical Area Tasks (TATs) supporting customers such as PEO-Air and Missile Defense, Air and Missile Defense Battle Laboratory, U.S. Army Armament Research Development and Engineering Center, U.S. Army Waterways Experiment Station, U.S. Army Corps of Engineers (Huntsville), U.S. Army Aberdeen Test Center, U.S. Army Space and Missile Defense Command, Department of the Army Staff, Defense Information Systems Agency, and the U.S. Army Materiel Systems Analysis Activity.

- Engineering support for frequency spectrum management
- Basic sensor research
- Design and development of programs for system assessment and analysis
- Evaluation of advanced technologies for alternatives to minefields
- Ordnance and explosive detection and neutralization/removal
- Analysis and assessment of air and missile defense programs
- GENESIS model verification, validation and analysis
- 3-D visualization of high-altitude platform sensor input.

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